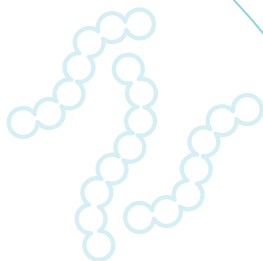
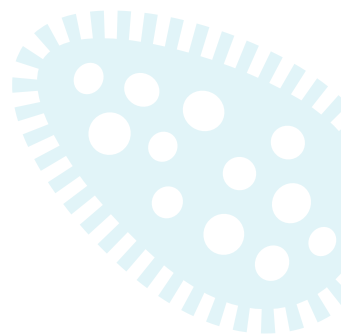


# Antimicrobial Modification

*Quick Reference Guide*



**AMR&S**  
WORKING GROUP

# Antimicrobial Modification

## AIM

Provision of effective antibiotic treatment to maximize benefit, while avoiding unnecessary antibiotic use that would promote development of resistance<sup>1,2</sup>

### Initiate<sup>3-5</sup>

- Select empirical antibiotics based on treatment guidelines and local susceptibilities
- Consider patient factors\*
- Anticipate common pathogens for suspected source

### Evaluate<sup>3-5</sup>

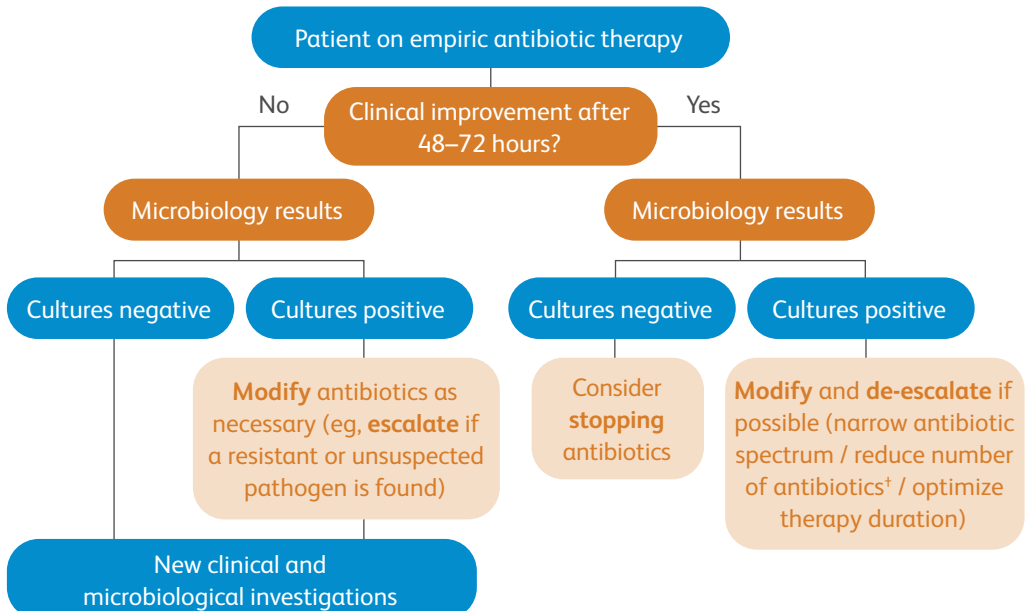
- Assess clinical signs and symptoms daily
- Check cultures and molecular diagnostics
- Review dosing strategy

### Optimize<sup>1-6</sup>

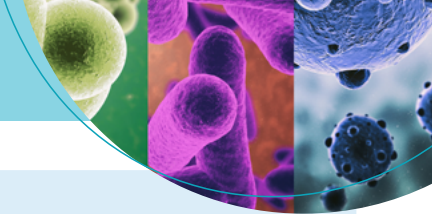
- Once microbiological results are known, optimize antibiotic therapy (by **de-escalation** or **escalation** as deemed necessary) based on clinical response, patient factors\*, and culture and susceptibility results (Figure)

#### \*Patient factors to be considered during antibiotic selection<sup>3-5</sup>:

- Kidney and liver functions
- Previous healthcare exposure
- Recent antibiotic use
- Immunocompromised status
- Potential drug-drug interactions
- Allergy



<sup>1</sup>Use the least number of antibiotics to cover the identified pathogen(s)  
Adapted from Zilahi et al. 2016<sup>6</sup>



## Consider ALL patients on antibiotics with a **POSITIVE** culture for antibiotic modification<sup>6,7</sup>

1. Review the type, source and status of the culture
2. Is an infection present?
3. Is the positive culture complete – are other cultures pending?
4. What is the pathogen's susceptibility profile?
5. What antibiotic is the patient on – is a narrower spectrum antibiotic appropriate?
- 6. Are there any patient-specific factors to consider (eg, allergies, concomitant drugs)?**

## Benefits of de-escalation<sup>2,3,8,9</sup>



- Unaltered clinical outcomes compared to maintenance of initial therapy



- Prevent emergence of antimicrobial resistance



- Decreased antibiotic adverse events



- Reduced overall antimicrobial costs
  - Reduced unnecessary antibiotic use
  - Optimized duration of therapy

## Timely de-escalation<sup>10,11</sup>



- Assess daily for potential to de-escalate



- Consider de-escalation as soon as the causative pathogen has been identified and susceptibility profile is known

*“Each physician prescribing antibiotics should be challenged for the quality of her/his prescription on a daily basis”<sup>11</sup>*

## Recommending optimization of antibiotics to prescribers

### TEMPLATE<sup>12</sup>

[Patient name] was started empirically on [name of broader spectrum antibiotic] for the treatment of [infection syndrome] [number of days] days ago.

The [culture type] sent before antibiotics were started came back positive for [pathogen name] which is susceptible to [name of narrower spectrum antibiotic].

The patient is improving clinically. [Provide specific parameters such as temperature, blood pressure, white blood cell count, degree of pain/cognition, or other objective/subjective parameters as evidence to support clinical improvement] after starting antibiotic therapy.

Based on culture results, I would recommend de-escalating antibiotic therapy to [name of narrower spectrum antibiotic, dose, route, frequency] and would continue this therapy for [number of days].

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